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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,326	12/14/2001	Robert C.U. Yu	A0A96	8625

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EXAMINER

HARAN, JOHN T

ART UNIT PAPER NUMBER

1733

DATE MAILED: 02/18/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

A9

**Office Action Summary**

Application No.

09/683,326

Applicant(s)

YU ET AL.

Examiner

John T. Haran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This Office Action is in response to the amendments, remarks, and terminal disclaimer filed on 1/7/04. All previous rejections are withdrawn in light of the response.

#### ***Terminal Disclaimer***

2. The terminal disclaimer filed on 1/7/04 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application No. 09/683,329 has been reviewed and is accepted. The terminal disclaimer has been recorded.

#### ***Drawings***

3. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The disclosure is objected to because of the following informalities: page 1 of the specification has a blank for a related applications filed on 12/14/01. These application numbers should be provided. It appears the application numbers are 09/683,329 and 09/683,332.

Appropriate correction is required.

#### ***Claim Objections***

5. Claim 12 is objected to because of the following informalities: it appears the word "pattered" should read - - patterned - -. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 13 and 16-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claim 13 require forming desired features on first and second portions of a support sheet then overlap the portions and bond them together and additionally to have the first and second portions have complementary puzzle cut patterns that are mated together. Similarly claim 16 requires mating the first and second desired features and overlapping the first and second desired features. It is noted that the only discussion of overlapping portions of the sheet involves having rabbeted tongues (See Figures 5 and 6) and that use of the terms mating or interlocking is utilized in reference to puzzle cuts. Thus, it appears that the ends of the support sheet are formed with puzzle cuts and rabbeted tongues and that each end of the support sheet has three features: a puzzle cut, a series of upper parts of a rabbet joint, and a series of lower parts of a rabbet joint. Additionally it appears that each of these features are independent and distinct from one another and would require a separate laser ablation step to form each feature. However, the specification does not provide an adequate written description of the process for forming all three features on first and second portions of the support sheet and then overlapping, mating and bonding

the features of the first and second portions. The claims are rejected because they are based on a specification with an inadequate written description.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

All of the claims are directed to a **seamless** flexible electrostatographic imaging member belt fabrication method. It is unclear what is meant by the term seamless and how the seamlessness is achieved. It appears that the two aims of the application are bonding two ends of a support sheet together without creating a seam thickness and to coat the "seamed" support with at least one coating. Does seamless refer to there being no seam thickness or does it refer to there being a "seam" between the two ends which is then coated with a seamless coating thereby making the belt seamless or to a combination of the two. Or does seamless mean that there is no indication anywhere that portions of the belt where seamed together, i.e. that the ends of the support sheet are sufficiently fused together so that there is no indication that there is a seam?

Claims 1 and 11 appear to indicate that seamless refers to the no added thickness and coating the seamed belt, but claims 16 and 21 appear to indicate that seamless refers the ends are bonded together in a manner that there is no indication that there is a seam. The claims are in conflict and it appears that the application is directed towards

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bonding the ends of the support belt to produce a seamed belt, not a substantially seamless belt, and then coating the "seamed" belt. It appears that claims 16 and 21 should be amended accordingly. Clarification is requested.

Claims 13 and 16 are indefinite because it is unclear what is encompassed by the term first desired features on the first portion and second desired features on the second portion. As noted above, claim 13 requires forming desired features on first and second portions of a support sheet then overlap the portions and bond them together and additionally to have the first and second portions have complementary puzzle cut patterns that are mated together. Also as noted above claim 16, requires mating the first and second desired features and overlapping the first and second desired features. It is noted that the only discussion of overlapping portions of the sheet involves having rabbeted tongues (See Figures 5 and 6) and that use of the terms mating or interlocking is utilized in reference to puzzle cuts. Thus, it appears that the ends of the support sheet are formed with puzzle cuts and rabbeted tongues and that each end of the support sheet has three features: a puzzle cut, a series of upper parts of a rabbet joint, and a series of lower parts of a rabbet joint. Additionally it appears that each of these features are independent and distinct from one another and would require a separate laser ablation step to form each feature. It is unclear if the terms "first desired features" and "second desired features" are intended to encompass the three different types of features, but in order to avoid confusion there should be separate steps for forming each of the three different types of features on each portion of the support sheet and each feature should be adequately described and not generically called a feature.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-13, 14, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu (U.S. Patent 5,688,355) in view of Schlueter et al (U.S. Patent 5,997,974).

Yu is directed to a method of making a seamed electrostatographic belt using laser ablation that eliminates the excessive thickness of the seam overlap region present in the prior art wherein the ends of the support sheet are laser ablated to have complementary shapes, are overlapped and bonded together (Column 3, lines 16-19; Column 7, line 63 to Column 8, line 22). This process results in a seamed belt have substantially no added seam thickness (See Figures 6b, 7b, 8b, and 9b). Yu is silent towards applying at least one coating to a belt.

Schlueter '974 is directed to making an invisible seam ("seamless") electrostatographic belt wherein the two ends of a support sheet with complementary shapes formed by laser ablating are seamed together and then the support sheet has a series of coatings applied to provide a smooth and "seamless" electrostatographic belt (Column 4, lines 24-26; Column 6, lines 61-64; Column 12, lines 42-44; Figure 10; Column 14, lines 55-67). One skilled in the art would have readily appreciated that while Yu teaches the support sheet already having the various coatings applied before

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seaming, that coating the seamed support sheet of Yu with a series of coatings after seaming as taught in Schlueter '974 would result a "seamless" electrostatographic belt with the added advantage of the surface being smooth and "seamless". It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an uncoated support sheet, laser ablate the ends, overlap and bond the ends together and then apply a series of coatings to the seamed belt in the method of Yu as suggested in Schlueter '974 in order to provide a smooth and "seamless" electrostatographic belt.

Regarding claim 2 and 4, Yu teaches passing the laser through a mask (Column 17, lines 51-60).

Regarding claim 3, one skilled in the art would have readily appreciated that the first and second ends of the support sheet have complementary shapes so that two types of masks would be needed to shape the laser beam. It would have been obvious to have two masks in the process of Yu, as modified above.

Regarding claim 5, one skilled in the art would have readily appreciated that the laser beam can't reach the entire end portion to form all the features at once and that there necessarily needs to be relative motion between the laser and the sheet.

Regarding claims 6-7 and 10, laser beams are electromagnetic radiation and particle beams.

Regarding claim 8, Yu and Schlueter '974 teach one of the layers applied to form an electrostatographic belt is a photoconductive layer.



Regarding claim 9, Yu teaches ultrasonically welding the overlapped ends (Column 2, line 9).

Regarding claim 12, Yu teaches the laser beam illumination process (See Figure 5) described in the claim and furthermore such is well known and conventional in the art.

Regarding claims 14 Yu teaches a rabbeted joint (See Figures)

Regarding claim 21, Yu is teaches using a masked laser and having a photoconductive layer but is silent towards moving one of the laser and the sheet relative to the other. One skilled in the art would have readily appreciated that the laser beam can't reach the entire end portion to form all the features at once and that there necessarily needs to be relative motion between the laser and the sheet. It would have move one of the laser and the sheet relative to the other in the method of Yu, as modified above.

Regarding claim 22, Yu teaches ultrasonically welding the overlapped ends (Column 2, line 9).

12. Claims 13 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlueter et al (U.S. Patent 5,549,193) in view of Yu (U.S. Patent 5,688,355) and Schlueter et al (U.S. Patent 5,997,974).

Schlueter '193 is directed to a method of making a seamed belt that minimizes the thickness differential between the seamed portion of the belt and adjacent portions of the belt wherein the ends of the belt are shaped with laser to form joints that overlap, butt, and interlock; i.e. puzzle cut with rabbet tongues (Column 4, lines 46-57; Figures1-

4). While Schlueter '193 is directed to minimize the thickness differential, there appears to still be a noticeable thickness differential (See Figures 2-4).

Yu is also directed to a method of making a seamed belt using laser ablation that eliminates the excessive thickness of the seam overlap region present in the prior art wherein the ends of the support sheet are laser ablated to have complementary shapes, are overlapped and bonded together (Column 3, lines 16-19; Column 7, line 63 to Column 8, line 22). This process results in a seamed belt have substantially no added seam thickness (See Figures 6b, 7b, 8b, and 9b). One skilled in the art would have readily appreciated that both Schlueter '193 and Yu teach the disadvantages of having a thickness differential in the seam area and would have been motivated to laser ablate the ends of the sheet in Schlueter '193 so that when joined there is substantially no thickness added to the seam as taught in Yu. It would have been obvious to one of ordinary skill in the art at the time the invention was made to laser ablate the ends of the sheet so that when they are overlapped, butted, and interlocked (mated) there is substantially no added seam thickness in the method of Schlueter '193 as suggested in Yu in order to overcome the disadvantages of having a thickness differential between the seam and adjacent areas.

Schlueter '193 is also silent towards applying coatings over the seamed belt to make a "seamless" belt. Schlueter '974 is directed to making an invisible seam ("seamless) electrostatographic belt wherein the two ends of a support sheet are provided with mating puzzle cut patterns by laser ablating, are seamed together, and then the support sheet has a series of coatings applied to provide a smooth and

“seamless” electrostatographic belt (Column 4, lines 24-26; Column 6, lines 61-64; Column 12, lines 42-44; Figure 10; Column 14, lines 55-67). One skilled in the art would have readily appreciated coating the seamed belt of Schlueter ‘193 with a series of coatings as taught in Schlueter ‘974 in order to form a “seamless” electrostatographic belt. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a series of coatings to the seamed belt of Schlueter ‘193 as suggested in Schlueter ‘974 in order to provide a smooth and “seamless” electrostatographic belt.

Regarding claims 13 and 15, Schlueter ‘193 teaches using adhesive (Column 5, lines 39-42) and having a rabbeted joint (See Figures).

Regarding claim 17, one skilled in the art would have readily appreciated that the opposite surface of the opposite end would need to be shaped in order to have a rabbeted joint.

Regarding claim 18, Schlueter ‘974 teaches one of the layers applied to form an electrostatographic belt is a photoconductive layer (Column 12, lines 42-55).

Regarding claim 19, the support sheet of Schlueter ‘193 is a single layer of substantially homogeneous material.

Regarding claim 20, one skilled in the art would have readily appreciated that PET fits the parameters described for the flexible substrate sheet in Schlueter ‘193 (Column 4, lines 25-46).

***Response to Arguments***


13. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John T. Haran** whose telephone number is **(571) 272-1217**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John T. Haran  
Examiner  
Art Unit 1733